PHASE II REPORT

ENVIRONMENTAL ASSESSMENT

NORTH CHICAGO BIKE PATH
20TH TO 24TH STREETS
NORTH CHICAGO, ILLINOIS

prepared for :

LAKE COUNTY
DIVISION OF TRANSPORTATION

prepared by :

ENVIRODYNE ENGINEERS, INC.
168 NORTH CLINTON STREET
CHICAGO, ILLINOIS 60606

JUNE 7, 1991

EPA Region 5 Records Ctr.
229817

NORTH CHICAGO BIKE PATH
ENVIRONMETNAL ASSESSMENT
PHASE II REPORT

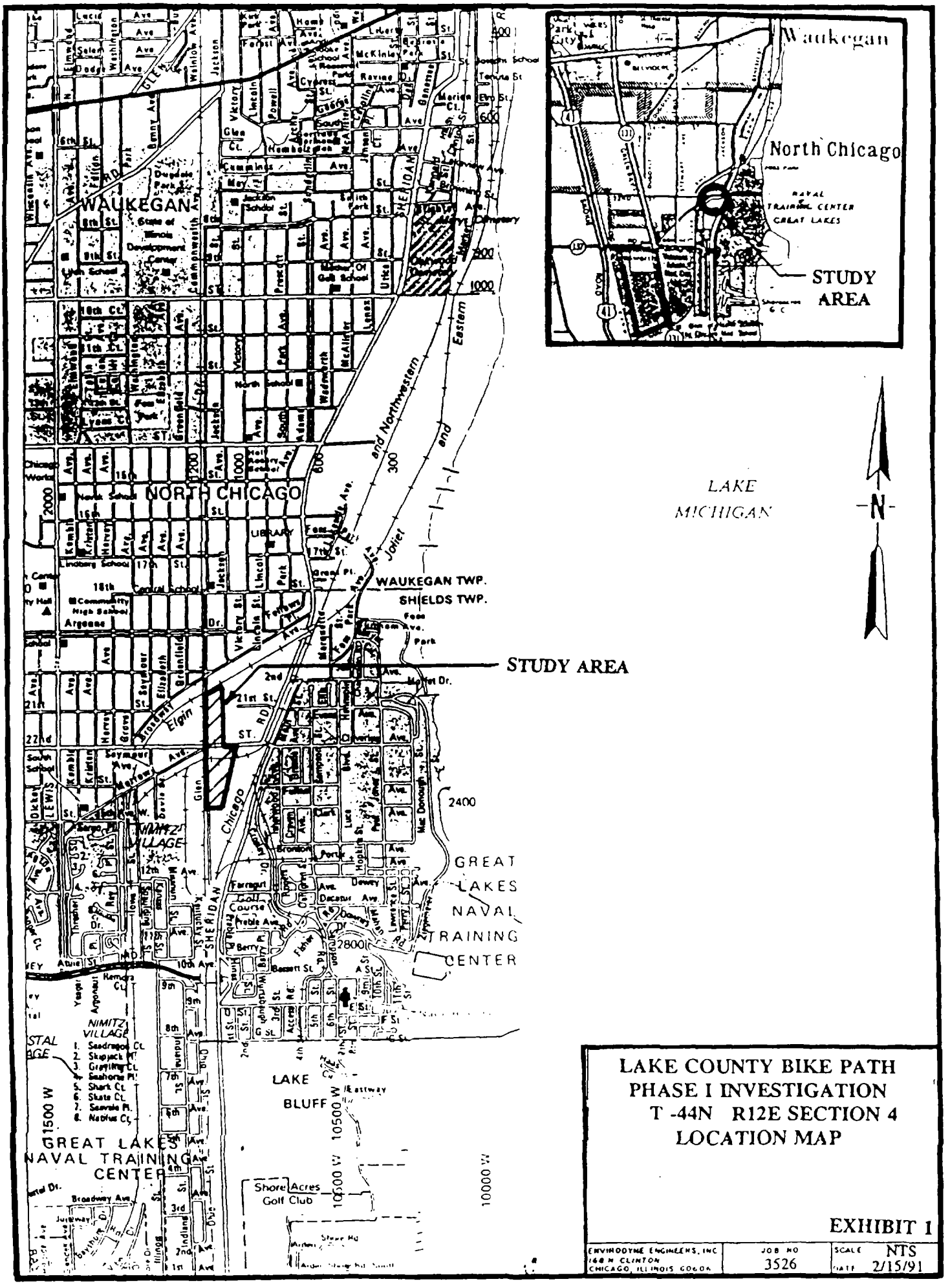
EXHIBITS

TABLES

INTRODUCTION

Envirodyne Engineers, Inc (EEI) has completed an environmental investigation for the proposed North Chicago Bike Path. The project site is located generally along Commonwealth Avenue in the vicinity of 22nd Street, in North Chicago, Illinois (Exhibit 1). A Phase I investigation, conducted by Envirodyne Engineers, documented information which suggested that contaminants may be on the property or may have migrated onto the property from adjacent parcels. The purpose of the investigation is to establish the presence of contamination prior to the construction of the proposed bike path. The investigation was used to identify contaminants and establish their concentration by collecting and analyzing soil samples along the route of the proposed bike path.

This report documents the procedures for environmental drilling, sampling and decontamination activities for this investigation; presents Envirodyne's evaluation of the analytical results of soil samples collected at the site; and presents findings and recommendations.



LAKE COUNTY BIKE PATH PHASE I INVESTIGATION T -44N R12E SECTION 4 LOCATION MAP

EXHIBIT 1

ENVIRODYNE ENGINEERS, INC 168 N CLINTON CHICAGO, ILLINOIS 60606	JOB NO 3526	SCALE NTS DATE 2/15/91

STUDY AREA

The site proposed for the bike path is located in North Chicago, Illinois. The site runs along Commonwealth Avenue from the EJ&E Railroad tracks south across 22nd Street. Approximately 550 feet south of 22nd Street, the proposed path turns east and runs approximately 225 feet until it curves to the southeast, south and then west. On the south side of the HMT Company at 2323 Commonwealth, the path turns sharply southeast until it intersects the 24th Street access ramp. Exhibit 2 is a site map showing the approximate location of the proposed path and significant landmarks.

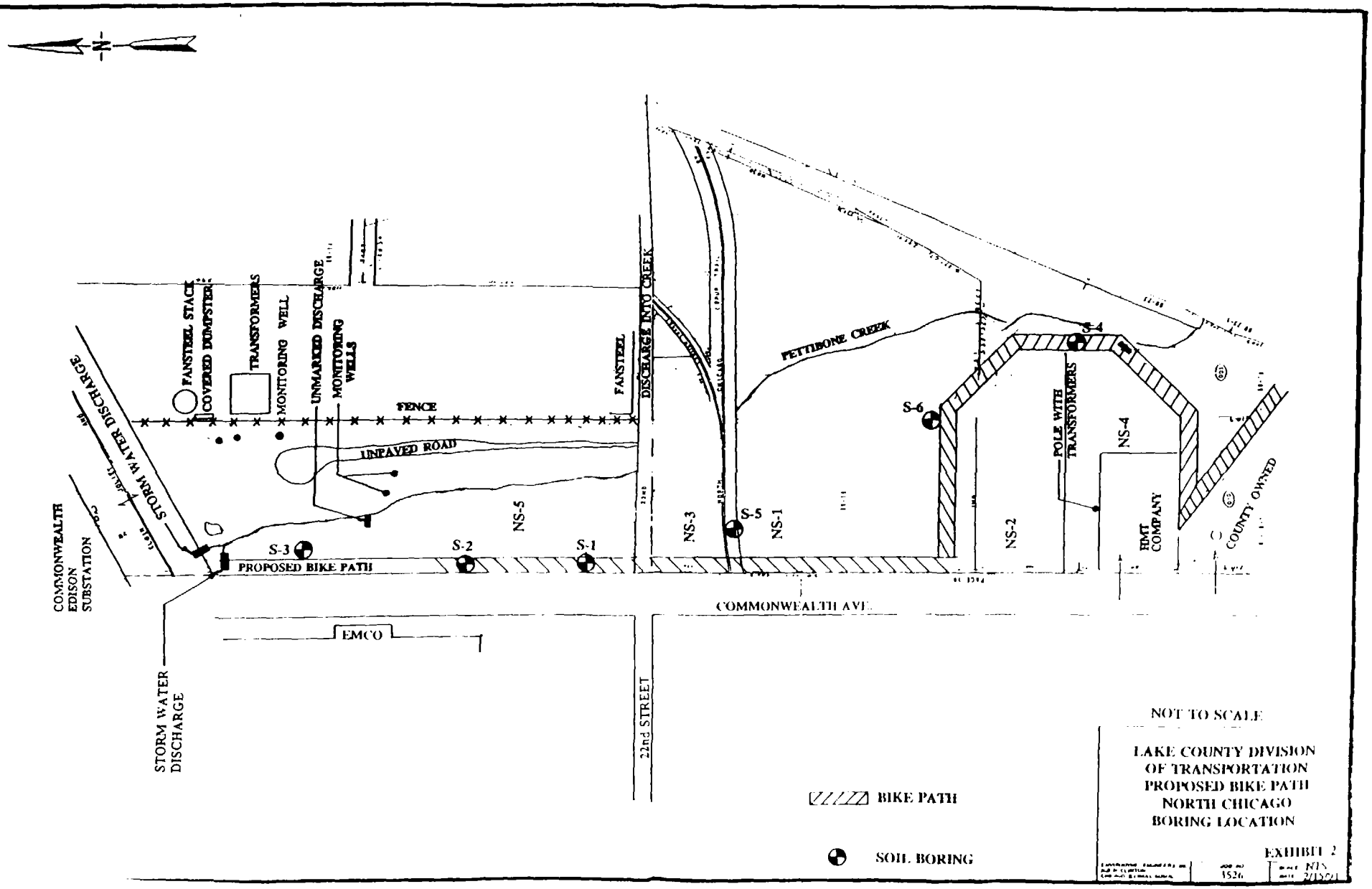
SCOPE OF WORK

Envirodyne directed Mars Environmental Solutions Inc. in drilling six borings along the bike path, collected and transported samples to the laboratory for analysis, and provided on-site health and safety direction.

The scope of work for this investigation included the following:

- contracting and oversite of the drilling of six (6) soil borings, each ten feet in depth, along the proposed bike path;
- screening soil samples with the HNU photoionization detector for the presence of volatile organic compounds;
- collecting composite samples for each boring at 2.5 feet intervals and submitting those samples for laboratory analysis; and
- reviewing analytical results and providing findings and recommendations.

Soil samples were analyzed by Grace Analytical Lab, Inc. of Berkeley, Illinois. Waste water from the decontamination of drilling and sampling equipment was collected and transported by Mars Environmental Solutions Inc. to the Lake County Division of Transportation facility in Libertyville, Illinois.


N
FANSTEEL STACK
COVERED DUMPSTER
TRANSFORMERS
MONITORING WELL
UNMARKED DISCHARGE
MONITORING WELLS
FANSTEEL
DISCHARGE INTO CREEK
PETTIBONE CREEK
S-4
S-6
FENCE
UNPAVED ROAD
STORM WATER DISCHARGE
POLE WITH TRANSFORMERS
NS-4
NS-5
NS-3
S-5
NS-1
NS-2
EMT COMPANY
COUNTY OWNED
COMMONWEALTH EDISON SUBSTATION
S-3
S-2
S-1
PROPOSED BIKE PATH
COMMONWEALTH AVE.
EMCO
STORM WATER DISCHARGE
22nd STREET
BIKE PATH
SOIL BORING
NOT TO SCALE
LAKE COUNTY DIVISION
OF TRANSPORTATION
PROPOSED BIKE PATH
NORTH CHICAGO
BORING LOCATION
EXHIBIT 2
3526
NTS
2/15/91

INVESTIGATION PROCEDURES

Six boring locations were selected along the proposed bike path. As shown by Exhibit 2, three (3) borings were drilled north of 22nd Street and three (3) were drilled south of 22nd Street at approximately 500 foot intervals. Each boring was drilled to a depth of 10 feet below grade. The borings were located in the field by Envirodyne personnel using simple taping procedures without the use of surveying instruments.

The six borings are designated as S-1, S-2, S-3, S-4, S-5, and S-6. The borings were numbered in the order of which they were drilled, i.e. S-1 being drilled first and S-6 being drilled last. Borings S-1, S-2 and S-4 are located directly within the proposed bike path area. However, borings S-3 and S-4 were drilled directly east of the path due to safety constraints imposed by overhead electrical wires and boring S-6 was drilled directly north of the path due to poor access. Appendix A provides boring construction logs for each of the six borings.

The drilling was performed under the full-time supervision of Envirodyne. Mars Environmental Solutions, Inc. conducted the drilling using a truck mounted rotary drilling rig, employing hollow stem continuous flight augers. Soil samples were obtained at 2.5 foot intervals by means of a standard split spoon sampler, in general accordance with ASTM D-1586. One composite sample was collected for each boring. The drilling was performed under level D protection with provisions for level C if required by elevated HNu readings.

The split spoon sampler was decontaminated between sampling intervals with a detergent wash and steam water rinse. The drill rig and drilling tools were decontaminated by hot water high pressure power washer before and after completion of each boring. The split spoon samplers were also decontaminated by hot water high pressure power washer before and after each boring. All decontamination took place onsite within the field located at the northeast intersection of 22nd Street and Commonwealth Ave (Exhibit 2). Approximately 50 gallons of decontamination waste water was collected in a 55 gallon drum and transported to the Lake County Division of Transportation for storage and disposal. Collected soil and waste water samples were maintained at appropriate sample preservation temperature and transported to Grace Laboratory in Barkley, Illinois. Auger cuttings from the boreholes and bentonite powder were used to backfill and seal the borings.

During drilling operations, soil samples were screened in the field for the presence of volatile organic compounds via an HNu photo-ionization detector (PID). Background levels for the HNU, following field calibration, was recorded at one part per million (ppm). Readings above 1 ppm during screening were recorded as positive organic readings. One sample screen was recorded above the 1ppm level for organics. Sample S-1 recorded a 1.8 ppm screening at the 1 foot to 2.5 feet sample interval. Correcting for background, this was interpreted as 0.8 ppm above background. No positive readings were detected in the remainder of sample screens of samples S-1 through S-6.

LABORATORY TESTING

Appendix B contains the complete analytical results for the sampled soils and waste water. These results are further discussed below.

Each of the six composite soil samples were analyzed for the following:

Benzene, Toluene, Ethylbenzene, Xylene (BTEX);

Polychlorinated biphenyls (PCB's); and

Total metals (Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver).

These are contaminants commonly associated with leaking underground storage tanks and industrial operations. Sampled waste water was analyzed for Biological Oxygen Demand (BOD), Total Suspended Solids (TSS), Volatile Organic Compounds (VOC's), and pH.

RCRA Metals Analysis

The samples collected within this study were analyzed for "total" metal concentration which includes the leachable as well as unleachable metals in the sample. There are no Federally established hazardous waste limits for analysis of total metal concentrations, however, since the concern in this study is the potential health threat from inplace materials and the soil in the area is not a "waste", it was determined that a total metals analysis would be most appropriate.

The Resource Conservation and Recovery Act and the associated Federal Regulations have defined concentration limits for eight metals (Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver) and 32 other organic compounds. A waste that exceeded the concentration limit for any of the 40 listed compounds was defined as hazardous due to toxicity (a waste can also be hazardous by ignitability, corrosivity, reactivity or it can be a listed hazardous waste). The Toxicity Characteristic Leaching Procedure (TCLP) is the analytical procedure required by the Federal Regulations to determine the contaminants concentration. This test is designed to mimic the acidic conditions in the landfill which would cause hazardous contaminants to leach out of the waste and possibly become part of the landfill leachate. Therefore, as part of the analytical preparation, an acid is used to leach the contaminants from the waste. The contaminant concentration in the leachate is then determined.

The total metal concentrations have been compared to the TCLP hazardous waste limits only to give an idea of the relative concentrations of the metals in the soil. Those levels less than the TCLP limits are not considered significant.

However, soils having metals concentrations higher than the TCLP limits should be of concern. Although the leachable levels of these metals could be less than the TCLP, metals which exceed the TCLP limit could present a risk if inhaled or ingested. In addition, if any of the soil is removed for disposal, a TCLP test would have to be performed to determine if it exceeded the hazardous waste limit.

Table 1 summarizes the results of the laboratory analysis for metals. Lead is the single metal that greatly exceeds the established Federal levels for leachable metal concentration. All lead analyses greatly exceeded the TCLP levels. The sample taken from borings S-2 (north of 22nd Street and east of Emco Chemical) showed the highest concentration of lead at 1250 parts per million. The lowest lead concentration was found at boring S-1 (at the north east corner of 22nd Street and Commonwealth Ave.) and was recorded at 79.3 parts per million. The lowest published toxic dose for Lead (oral) is 450 parts per million[1].

Total Arsenic, Barium, Mercury and Selenium concentrations were found to be at or below Federally established extraction procedure levels or to not have been detected within the samples. Cadmium, chromium and silver were reported above and below the established Federal levels, however the Federal TCLP levels were not greatly exceeded.

[1] Hazardous Chemicals Data Book, Environmetnal Health Review No. 4, Noyes Data Corporation, Park Ridge, New Jersey, 1980.

Table 1

ANALYTICAL RESULTS -- 8 RCRA METALS

**Results (Total PPM)

RCRA Metal	S-1	S-2	S-3	S-4	S-5	S-6	RCRA TCLP Limits *
Arsenic	3.00	1.33	1.2	0.07	1.27	4.00	5.0
Barium	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	100.0
Cadmium	0.26	2.99	0.89	3.26	1.90	2.71	1.0
Chromium	16	24.8	14.9	9.25	12.3	17.2	5.0
Lead	79.3	1250	227	294	125	715	5.0
Mercury	0.03	0.07	0.04	0.03	0.20	0.02	0.2
Selenium	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.0
Silver	10.4	2.52	1.13	2.75	2.17	2.81	5.0

* The TCLP (Toxic Characteristic Leaching Procedure) is an analytical method in which acid is used to leach metals from the sample. The concentrations of leachable metals in this column are the limits set by RCRA (Resource Conservation and Recovery Act) to define hazardous waste.

** Analysis results are reported as <u>total</u> metals which includes leachable as well as unleachable metal constituents.

TOLUENE

Of the complete Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) analysis conducted on the soils, Toluene was the single organic compound that was detected. Recorded levels generally ranged between a low of 9 parts per billion (at S-4 east of HMT) to a high of 29.8 parts per billion (east of Emco). Toluene levels above 10 parts per billion are normally viewed as indicating contamination. The OSHA (Occupational Health and Safety Administration) exposure limits are 100 parts per million (10 hour work day/40 hour week). Toluene, Ethylbenzene, and Xylene were also detected within the waste water resulting from the decontamination process but not in any of the soil samples.

PCB'S

PCB levels were recorded for Aroclor # 1254 in each of the soil samples. These levels were generally below 50 parts per billion with the exception of sample S-6, which was reported at 63.9 parts per billion. Generally, wastes with less than 50 parts per million are not regulated and typical action levels are at 50 parts per billion.

Table 2

ANALYTICAL RESULTS -- Toluene Levels

Results (Total UG/KG) *

Sample Location	Reported Concentration
S-1	14.3
S-2	29.8
S-3	24.3
S-4	9.84
S-5	13.7
S-6	14.5

* parts per billion.

Table 3

ANALYTICAL RESULTS -- Polychlorinated Biphenyls

Results (Total UG/KG) *

Sample Location	Reported Concentration
S-1	36.3
S-2	12.8
S-3	13.9
S-4	27.8
S-5	16.3
S-6	63.9

* parts per billion.

FINDINGS AND RECOMMENDATIONS

The analytical results of soil samples taken from the proposed bike path have identified elevated levels of a number of compounds that indicate that the proposed bike path has been impacted by contaminants, at least within the extent of borings conducted within the investigation.

It is not within the scope of work of this investigation to determine the vertical or horizontal extent of this contamination, or whether the reported levels would adversely affect the construction of the bike path (ie: cause harm to construction workers, local residents, or users of the completed path). However, because of the reported levels, the following precautionary measures should be taken prior to initiating construction activities:

The Illinois Environmental Protection Agency should be contacted to determine if remediation at this site is required. The IEPA through its Cleanup Objectives Team (COT) will determine if any remedial action is required, and if so, will set cleanup objectives for the site.

Impermeable material should be used to seal the surface of the bike path to prevent migration of contaminants and to insure that contaminants are not transported in blowing dust. Areas adjacent to the bike path should be sealed or vegetated.

Appropriate personal protection equipment (respiratory) should be worn by workers when excavating or disturbing the soil in the area and watering or other forms of dust suppression should be used to prevent blowing dust.

Any soil excavated from the area should be analyzed for Lead, Cadmium, Chromium, and Silver using the TCLP test to determine if the waste is hazardous prior to disposal off-site.

APPENDIX A

BORING LOGS

LOG OF BORING S-1

SHEET 1 OF 1

Project: North Shore Bike Path			Project No.: 3526
Location: North Chicago, Illinois			Elev and Datum
Drilling Agency: Raimonde and Sons Drilling			Date Started: 5/13/91 / Date Finished: 5/13/91
Drilling Equipment: CME 75			Completion Depth: 10 feet / Rock Depth: -----
Size and Type of Bit: 4.5" Hollow Stem Auger			No Samples / Dist / Undist / Core
Casing			Water Level: First / Compl / 24hr
Casing hammer	Weight: Automatic	Drop: CME	Foreman: Julius Hayward - Mars Env.
Sampler: Julius Hayward - Mars Env. Solutions, Inc.			Inspector: James Day - EEI
Sampler hammer	Weight	Drop	

Casing Blows

ELEV, FT	DESCRIPTION	DEPTH FT	SAMPLES: No Loc	Type	Rec ft	Pen Rs bl/6 in	PP/TV t/ft2	HNU READINGS (ppm)
		1						
	Topsoil: Organic, dark brown			s		3		
	CL, Silty Clay: Stiff, moist, dark brown	2		s		5		0.8 ppm
						8		
		3						
	CL, Silty Clay: Medium stiff, moist, light brown, oxidized	4		s		3		
				s		3		0.0 ppm
		5				3		
		6						
	ML, Silt: Medium stiff, moist, brown to yellow, oxidized	7		s		4		
				s		6		0.0 ppm
		8				6		
	ML, Silt: Trace sand, medium stiff to loose, moist, light brown	9		s		5		
				s		5		0.0 ppm
						9		
	* END OF BORING - 10 FEET *	10						
		11						
		12						

LOG OF BORING S-2

SHEET 1 OF 1

Project: North Shore Bike Path			Project No.: 3526
Location: North Chicago, Illinois			Elev and Datum:
Drilling Agency: Raimonde and Sons Drilling			Date Started: 5/13/91 / Date Finished: 5/13/91
Drilling Equipment: CME 75			Completion Depth: 10 feet / Rock Depth: -----
Size and Type of Bit: 4.5" Hollow Stem Auger			No Samples / Dist / Undist / Core
Casing			Water Level / First / Compl / 24hr
Casing hammer	Weight: Automatic	Drop: CME	Foreman: Julius Hayward - Mars Env.
Sampler: Julius Hayward - Mars Env. Solutions, Inc.			Inspector: James Day - EEI
Sampler hammer	Weight	Drop	

Casing Blows	ELEV, FT	DESCRIPTION	DEPTH FT	SAMPLES: No Loc	Type	Rec ft	Pen Rs bl/6 in	PP/TV t/ft2	HNU READINGS (ppm)
			1						
		CL, Silty Clay: Stiff, moist, dark brown	2		s s		5 5 6		0.0 ppm
			3						
		CL, Silty Clay: Trace sand, organic plant material, medium stiff, moist, brown, gray	4		s s		4 6 6		0.0 ppm
			5						
			6						
		CL, Silty Clay: Organic plant material, medium stiff, moist, gray	7		s s		5 5 5		0.0 ppm
			8						
		CL, Silty Clay: Trace sand, medium stiff to loose, gray, wet	9		s s		1 2 2		0.0 ppm
		* END OF BORING - 10 FEET *	10						
			11						
			12						

LOG OF BORING S-3

SHEET 1 OF 1

Project: North Shore Bike Path	Project No.: 3526
Location: North Chicago, Illinois	Elev and Datum:
Drilling Agency: Raimonde and Sons Drilling	Date Started: 5/13/91 — Date Finished: 5/13/91
Drilling Equipment: CME 75	Completion Depth: 10 feet — Rock Depth: -----
Size and Type of Bit: 4.5" Hollow Stem Auger	No Samples — Dist — Undist — Core
Casing	Water Level — First — Compl — 24hr
Casing hammer — Weight: Automatic — Drop: CME	Foreman: Julius Hayward - Mars Env.
Sampler: Julius Hayward - Mars Env. Solutions, Inc.	Inspector: James Day - EEI
Sampler hammer — Weight — Drop	

Casing Blows	ELEV, FT	DESCRIPTION	DEPTH FT	SAMPLES: No Loc	Type	Rec ft	Pen Rs bl/6 in	PP/TV t/ft2	HNU READINGS (ppm)
			1						
		Topsoil: Organic, dark brown			s		3		
		CL, Silty Clay: Organic plant material, medium stiff, moist, brown to gray	2		s		4		0.0 ppm
							4		
			3						
		ML, Silt: Medium stiff, moist, yellow to brown, oxidized	4		s		3		
					s		4		0.0 ppm
			5				4		
			6						
		ML, Silt: Medium stiff, moist, yellow to brown, oxidized			s		3		
			7		s		5		0.0 ppm
		SM, Sand: Loose, moist, gray					7		
			8						
		ML, Silt and Sand: Medium stiff to loose, wet, brown to gray	9		s		3		
					s		4		0.0 ppm
							6		
		* END OF BORING - 10 FEET *	10						
			11						
			12						

LOG OF BORING S-4

SHEET 1 OF 1

Project: North Shore Bike Path			Project No.: 3526
Location: North Chicago, Illinois			Elev and Datum:
Drilling Agency: Raimonde and Sons Drilling			Date Started: 5/13/91 / Date Finished: 5/13/91
Drilling Equipment: CME 75			Completion Depth: 10 feet / Rock Depth: -----
Size and Type of Bit: 4.5" Hollow Stem Auger			No Samples / Dist / Undist / Core
Casing			Water Level: First / Compl / 24hr
Casing hammer	Weight: Automatic	Drop: CME	Foreman: Julius Hayward - Mars Env.
Sampler: Julius Hayward - Mars Env. Solutions, Inc.			Inspector: James Day - EEI
Sampler hammer	Weight	Drop	

Casing Blows	ELEV, FT	DESCRIPTION	DEPTH FT	SAMPLES: No Loc	Type	Rec ft	Pen Rs bl/6 in	PP/TV t/ft2	HNU READINGS (ppm)
			1						
		Topsoil: Organic brown			s		8		
		Fill: Foundry material, black bituminous, red course sand, loose, dry	2		s		8		0.0 ppm
							7		
			3						
		Fill: Foundry material, black bituminous, red course sand, loose, dry	4		s		8		
					s		10		0.0 ppm
		CL, Silty Clay: Medium stiff, dry, light brown	5				7		
			6						
		Fill: Foundry material, black bituminous, red course sand, loose, dry			s		7		
			7		s		2		0.0 ppm
							1		
			8						
		Fill: Foundry material, red course sand, loose, dry	9		s		2		
		CL, Silty Clay: Stiff, dry, brown to yellow			s		4		0.0 ppm
							1		
		* END OF BORING - 10 FEET *	10						
			11						
			12						

LOG OF BORING S-5

SHEET 1 OF 1

Project: North Shore Bike Path			Project No: 3526
Location: North Chicago, Illinois			Elev and Datum
Drilling Agency: Raimonde and Sons Drilling		Date Started: 5/13/91	Date Finished: 5/13/91
Drilling Equipment: CME 75		Completion Depth: 10 feet	Rock Depth: -----
Size and Type of Bit: 4.5" Hollow Stem Auger		No Samples / Dist / Undist / Core	
Casing		Water Level: First / Compl / 24hr	
Casing hammer / Weight: Automatic / Drop: CME		Foreman: Julius Hayward - Mars Env.	
Sampler: Julius Hayward - Mars Env. Solutions, Inc.		Inspector: James Day - EEI	
Sampler hammer / Weight / Drop			

Casing Blows	ELEV, FT	DESCRIPTION	DEPTH FT	SAMPLES: No Loc	Type	Rec ft	Pen Rs bl/6 in	PP/TV t/ft2	HNU READINGS (ppm)
			1						
		SP, Sand: Loose, dry, black			s		1		
		CL, Silty Clay: Medium stiff, dry, light brown	2		s		4 5		0.0 ppm
			3						
		CL, Silty Clay: Medium stiff, dry, light brown	4		s s		3 5 4		0.0 ppm
			5						
			6						
		CL, Silty Clay: Medium stiff, dry, light brown	7		s s		2 3 5		0.0 ppm
			8						
		ML, Silt: Medium stiff, dry, gray to yellow, oxidized	9		s s		4 6 6		0.0 ppm
		* END OF BORING - 10 FEET *	10						
			11						
			12						

LOG OF BORING S-6

SHEET 1 OF 1

Project: North Shore Bike Path			Project No.: 3526
Location: North Chicago, Illinois			Elev and Datum:
Drilling Agency: Raimonde and Sons Drilling			Date Started: 5/13/91 / Date Finished: 5/13/91
Drilling Equipment: CME 75			Completion Depth: 10 feet / Rock Depth: -----
Size and Type of Bit: 4.5" Hollow Stem Auger			No Samples / Dist / Undist / Core
Casing			Water Level: First / Compl / 24hr
Casing hammer	Weight: Automatic	Drop: CME	Foreman: Julius Hayward - Mars Env.
Sampler: Julius Hayward - Mars Env. Solutions, Inc.			Inspector: James Day - EEI
Sampler hammer	Weight	Drop	

Casing Blows	ELEV, FT	DESCRIPTION	DEPTH FT	SAMPLES: No Loc	Type	Rec ft	Pen Rs bl/6 in	PP/TV t/ft2	HNU READINGS (ppm)
			1						
		Topsoil: Organic, dark brown			s		3		
		CL, Silty Clay: Pebbles, stiff dry, light brown	2		s		3 5		0.0 ppm
			3						
		CL, Silty Clay: Stiff, dry, light brown to yellow, oxidized	4		s		4		
		ML, Silt: Medium stiff, dry, yellow, oxidized			s		4 4		0.0 ppm
			5						
			6						
		ML, Silt: Medium stiff, dry, yellow, oxidized	7		s s		3 3 4		0.0 ppm
			8						
		ML, Silt: Medium stiff, moist, dark brown to yellow, oxidized	9		s s		2 1 1		0.0 ppm
		* END OF BORING - 10 FEET *	10						
			11						
			12						

APPENDIX B

ANALYTICAL RESULTS

GRACE ANALYTICAL LAB, INC.
5300-B McDERMOTT DRIVE, BERKELEY, IL 60163
(708) 449-9449, FAX (708) 449-3663

INORGANIC ANALYSIS DATA SHEET

STUDY NAME: ENVIRODYNE-3526 STUDY NO: GAL-910514

TOTAL METALS

TEST	RESULTS (PPM) S-1	S-2	S-3	S-4	S-5	S-6
As	3.00	1.33	1.20	0.07	1.27	4.00
Ba	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Cd	0.26	2.99	0.89	3.26	1.90	2.71
Cr	16.0	24.8	14.9	9.25	12.3	17.2
Pb	79.3	1250	227	294	125	715
Hg	0.03	0.07	0.04	0.03	0.20	0.02
Se	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ag	10.4	2.52	1.13	2.75	2.17	2.81

GRACE ANALYTICAL LAB, INC.
5300-B MCDERMOTT DRIVE, BERKELEY, ILLINOIS 60163
(708) 449-9449, FAX (708) 449-3663

BTEX ANALYSIS DATA SHEET

STUDY NAME: Envirodyne-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: 3526-S-1 FILE REF. NO: >V4465

	CAS #	COMPOUND	AMOUNT (UG/KG)
1.	71-43-2	BENZENE	5.0 U
2.	108-88-3	TOLUENE	14.3
3.	100-41-4	ETHYLBENZENE	5.0 U
4.	108-38-3	XYLENE (total)	15.0 U

CODES: U - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT.
J - ESTIMATED VALUE.
SLC - SUSPECTED LABORATORY CONTAMINANT.
SFC - SUSPECTED FIELD CONTAMINANT.

GRACE ANALYTICAL LAB, INC.
5300-B MCDERMOTT DRIVE, BERKELEY, ILLINOIS 60163
(708) 449-9449, FAX (708) 449-3663

BTEX ANALYSIS DATA SHEET

STUDY NAME: Envirodyne-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: 3526-S-2 FILE REF. NO: >V4466

	CAS #	COMPOUND	AMOUNT (UG/KG)
1.	71-43-2	BENZENE	5.0 U
2.	108-88-3	TOLUENE	29.8
3.	100-41-4	ETHYLBENZENE	5.0 U
4.	108-38-3	XYLENE (total)	15.0 U

CODES: U - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT.
J - ESTIMATED VALUE.
SLC - SUSPECTED LABORATORY CONTAMINANT.
SFC - SUSPECTED FIELD CONTAMINANT.

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(708) 449-9449, FAX (708) 449-3663

BTEX ANALYSIS DATA SHEET

STUDY NAME: Envirodyne-3526 STUDY NO: GAL-910914

LAB SAMPLE I.D. NO: 3526-S-3 FILE REF. NO: >V4467

	CAS #	COMPOUND	AMOUNT (UG/KG)
1.	71-43-2	BENZENE	5.0 U
2.	108-88-3	TOLUENE	24.3
3.	100-41-4	ETHYLBENZENE	5.0 U
4.	108-38-3	XYLENE (total)	15.0 U

CODES: U - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT.
J - ESTIMATED VALUE.
SLC - SUSPECTED LABORATORY CONTAMINANT.
SFC - SUSPECTED FIELD CONTAMINANT.

GRACE ANALYTICAL LAB, INC.
5300-B MCDERMOTT DRIVE, BERKELEY, ILLINOIS 60163
(708) 449-9449, FAX (708) 449-3663

BTEX ANALYSIS DATA SHEET

STUDY NAME: Envirodyne-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: 3526-S-4 FILE REF. NO: >U4468

	CAS #	COMPOUND	AMOUNT (UG/KG)
1.	71-43-2	BENZENE	5.0 U
2.	108-88-3	TOLUENE	9.84
3.	100-41-4	ETHYLBENZENE	5.0 U
4.	108-38-3	XYLENE (total)	15.0 U

CODES: U - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT.
J - ESTIMATED VALUE.
SLC - SUSPECTED LABORATORY CONTAMINANT.
SFC - SUSPECTED FIELD CONTAMINANT.

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9300-B MCDERMOTT DRIVE, BERKELEY, ILLINOIS 60163
(708) 449-9449, FAX (708) 449-3663

BTEX ANALYSIS DATA SHEET

STUDY NAME: Envirodyne-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: 3526-S-5 FILE REF. NO: >V4469

	CAS #	COMPOUND	AMOUNT (UG/KG)
1.	71-43-2	BENZENE	5.0 U
2.	108-88-3	TOLUENE	13.7
3.	100-41-4	ETHYLBENZENE	5.0 U
4.	108-38-3	XYLENE (total)	15.0 U

CODES: U - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT.
J - ESTIMATED VALUE.
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SFC - SUSPECTED FIELD CONTAMINANT.

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BTEX ANALYSIS DATA SHEET

STUDY NAME: Envirodyne-3926 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: 3526-S-6 FILE REF. NO: >U4470

	CAS #	COMPOUND	AMOUNT (UG/KG)
1.	71-43-2	BENZENE	5.0 U
2.	108-88-3	TOLUENE	14.5
3.	100-41-4	ETHYLBENZENE	5.0 U
4.	108-38-3	XYLENE (total)	15.0 U

CODES: U - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT.
J - ESTIMATED VALUE.
SLC - SUSPECTED LABORATORY CONTAMINANT.
SFC - SUSPECTED FIELD CONTAMINANT.

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(708) 449-9449, FAX (708) 449-3663

BTEX ANALYSIS DATA SHEET

STUDY NAME: Envirodyne-3526 STUDY NO: GAL-910914

LAB SAMPLE I.D. NO: Lab Blank FILE REF. NO: >U4462

	CAS #	COMPOUND	AMOUNT (UG/KG)
1.	71-43-2	BENZENE	5.0 U
2.	108-88-3	TOLUENE	5.0 U
3.	100-41-4	ETHYLBENZENE	5.0 U
4.	108-38-3	XYLENE (total)	15.0 U

CODES: U - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT.
J - ESTIMATED VALUE.
SLC - SUSPECTED LABORATORY CONTAMINANT.
SFC - SUSPECTED FIELD CONTAMINANT.

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POLYCHLORINATED BIPHENYL ANALYSIS DATA SHEET

STUDY NAME: ENVIRODYNE-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: S-1 FILE REF. NO: P2781

AROCLOR #	CAS #	(UG/KG) CONCENTRATION
1016	12674-11-2	6.6 U
1221	11104-28-2	6.6 U
1232	11141-16-5	6.6 U
1242	53469-21-9	6.6 U
1248	12672-29-6	6.6 U
1254	11097-69-1	36.3
1260	11096-82-5	6.6 U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
THE VALUE REPORTED IS THE METHOD DETECTION LIMIT

SLC - SUSPECTED LABORATORY CONTAMINANT

SFC - SUSPECTED FIELD CONTAMINANT

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(708) 449-9449, FAX (708) 449-3663

POLYCHLORINATED BIPHENYL ANALYSIS DATA SHEET

STUDY NAME: ENVIRODYNE-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: S-2 FILE REF. NO: P2782

AROCLOR #		CAS #	(UG/KG) CONCENTRATION
1016	--	12674-11-2	6.6 U
1221	--	11104-28-2	6.6 U
1232	--	11141-16-5	6.6 U
1242	--	53469-21-9	6.6 U
1248	--	12672-29-6	6.6 U
1254	--	11097-69-1	12.8
1260	--	11096-82-5	6.6 U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
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SLC - SUSPECTED LABORATORY CONTAMINANT

SFC - SUSPECTED FIELD CONTAMINANT

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POLYCHLORINATED BIPHENYL ANALYSIS DATA SHEET

STUDY NAME: ENVIRODYNE-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: S-3 FILE REF. NO: P2783

AROCLOR #	CAS #	(UG/KG) CONCENTRATION
1016	12674-11-2	6.6 U
1221	11104-28-2	6.6 U
1232	11141-16-5	6.6 U
1242	53469-21-9	6.6 U
1248	12672-29-6	6.6 U
1254	11097-69-1	13.9
1260	11096-82-5	6.6 U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
THE VALUE REPORTED IS THE METHOD DETECTION LIMIT

SLC - SUSPECTED LABORATORY CONTAMINANT

SFC - SUSPECTED FIELD CONTAMINANT

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POLYCHLORINATED BIPHENYL ANALYSIS DATA SHEET

STUDY NAME: ENVIRODYNE-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: S-4 FILE REF. NO: P2784

AROCLOR #	CAS #	(UG/KG) CONCENTRATION
1016	12674-11-2	6.6 U
1221	11104-28-2	6.6 U
1232	11141-16-5	6.6 U
1242	53469-21-9	6.6 U
1248	12672-29-6	6.6 U
1254	11097-69-1	27.8
1260	11096-82-5	6.6 U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
THE VALUE REPORTED IS THE METHOD DETECTION LIMIT

SLC - SUSPECTED LABORATORY CONTAMINANT

SFC - SUSPECTED FIELD CONTAMINANT

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POLYCHLORINATED BIPHENYL ANALYSIS DATA SHEET

STUDY NAME: ENVIRODYNE-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: S-5 FILE REF. NO: P2785

AROCLOR #	CAS #	(UG/KG) CONCENTRATION
1016	12674-11-2	6.6 U
1221	11104-28-2	6.6 U
1232	11141-16-5	6.6 U
1242	53469-21-9	6.6 U
1248	12672-29-6	6.6 U
1254	11097-69-1	16.3
1260	11096-82-5	6.6 U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
THE VALUE REPORTED IS THE METHOD DETECTION LIMIT

SLC - SUSPECTED LABORATORY CONTAMINANT

SFC - SUSPECTED FIELD CONTAMINANT

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POLYCHLORINATED BIPHENYL ANALYSIS DATA SHEET

STUDY NAME: ENVIRODYNE-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: S-6 FILE REF. NO: P2786

AROCLOR #		CAS #	(UG/KG) CONCENTRATION
1016	--	12674-11-2	6.6 U
1221	--	11104-28-2	6.6 U
1232	--	11141-16-5	6.6 U
1242	--	53469-21-9	6.6 U
1248	--	12672-29-6	6.6 U
1254	--	11097-69-1	63.9
1260	--	11096-82-5	6.6 U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
THE VALUE REPORTED IS THE METHOD DETECTION LIMIT

SLC - SUSPECTED LABORATORY CONTAMINANT

SFC - SUSPECTED FIELD CONTAMINANT

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POLYCHLORINATED BIPHENYL ANALYSIS DATA SHEET

STUDY NAME: ENVIRODYNE-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: Lab Blank FILE REF. NO: P2780

AROCLOR #	CAS #	(UG/KG) CONCENTRATION
1016	12674-11-2	6.6 U
1221	11104-28-2	6.6 U
1232	11141-16-5	6.6 U
1242	53469-21-9	6.6 U
1248	12672-29-6	6.6 U
1254	11097-69-1	6.6 U
1260	11096-82-5	6.6 U

CODES: U --- COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
THE VALUE REPORTED IS THE METHOD DETECTION LIMIT

SLC - SUSPECTED LABORATORY CONTAMINANT

SFC - SUSPECTED FIELD CONTAMINANT

GRACE ANALYTICAL LABORATORY, INC.
5300-B McDERMOTT DRIVE, BERKELEY, ILLINOIS 60163
(708) 449-9449, FAX (708) 449-3663

INORGANIC ANALYSIS DATA SHEET

STUDY NAME: ENVIRODYNE-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO. W-1A

TEST	RESULT
PH	10.48
TOTAL SUSPENDED SOLIDS	735 PPM
BOD	28.0 PPM

WATER SAMPLE

GRACE ANALYTICAL LAB, INC.
5300-B MCDERMOTT DRIVE, BERKELEY, ILLINOIS 60163
(708) 449-9449, FAX (708) 449-3663

VOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: Envirodyne-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: 3526-W-1C FILE REF. NO: >V4464

	CAS #	COMPOUND	AMOUNT (ug/l)	
1.	74-87-3	CHLOROMETHANE	10	U
2.	74-83-9	BROMOMETHANE	10	U
3.	75-01-4	VINYL CHLORIDE	2.0	U
4.	75-00-3	CHLOROETHANE	1.5	U
5.	75-09-2	METHYLENE CHLORIDE	1.0	U
6.	67-64-1	ACETONE	50	U
7.	75-15-0	CARBON DISULFIDE	3.0	U
8.	75-35-4	1,1-DICHLOROETHENE	1.5	U
9.	75-34-3	1,1-DICHLOROETHANE	1.5	U
10.	540-59-0	1,2-DICHLOROETHENE (total)	1.5	U
11.	67-66-3	CHLOROFORM		2.68
12.	78-93-3	2-BUTANONE	50	U
13.	107-06-2	1,2-DICHLOROETHANE	1.5	U
14.	71-55-6	1,1,1-TRICHLOROETHANE	1.5	U
15.	56-23-5	CARBON TETRACHLORIDE	1.5	U
16.	108-05-4	VINYL ACETATE	15	U
17.	75-27-4	BROMODICHLOROMETHANE	1.5	U
18.	78-87-5	1,2-DICHLOROPROPANE	1.5	U
19.	10061-01-5	cis-1,3-DICHLOROPROPENE	1.0	U
20.	79-01-6	TRICHLOROETHENE	1.5	U
21.	71-43-2	BENZENE	1.5	U
22.	124-48-1	DIBROMOCHLOROMETHANE	1.5	U
23.	79-00-5	1,1,2-TRICHLOROETHANE	1.5	U
24.	10061-02-6	trans-1,3-DICHLOROPROPENE	2.0	U
25.	110-75-8	2-CHLOROETHYLVINYL ETHER	1.5	U
26.	75-25-2	BROMOFORM	1.5	U
27.	108-10-1	4-METHYL-2-PENTANONE	3.0	U
28.	591-78-6	2-HEXANONE	50	U
29.	127-18-4	TETRACHLOROETHENE	1.5	U
30.	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5	U
31.	108-88-3	TOLUENE		4.07
32.	108-90-7	CHLOROBENZENE	1.5	U
33.	100-41-4	ETHYLBENZENE		2.03
34.	100-42-5	STYRENE	1.0	U
35.	108-38-3	XYLENE (total)		8.25

CODES: U - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
J - ESTIMATED VALUE.
SLC - SUSPECTED LABORATORY CONTAMINANT.
SFC - SUSPECTED FIELD CONTAMINANT.

WATER SAMPLE

GRACE ANALYTICAL LAB, INC.
5300-B MCDERMOTT DRIVE, BERKELEY, ILLINOIS 60163
(708) 449-9449, FAX (708) 449-3663

VOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: Envirodyne-3526 STUDY NO: GAL-910914

LAB SAMPLE I.D. NO: 3526-W-1B FILE REF. NO: >V4463

	CAS #	COMPOUND	AMOUNT (ug/l)	
1.	74-87-3	CHLOROMETHANE	10	U
2.	74-83-9	BROMOMETHANE	10	U
3.	75-01-4	VINYL CHLORIDE	2.0	U
4.	75-00-3	CHLOROETHANE	1.5	U
5.	75-09-2	METHYLENE CHLORIDE	1.0	U
6.	67-64-1	ACETONE	50	U
7.	75-15-0	CARBON DISULFIDE	3.0	U
8.	75-35-4	1,1-DICHLOROETHENE	1.5	U
9.	75-34-3	1,1-DICHLOROETHANE	1.5	U
10.	540-59-0	1,2-DICHLOROETHENE (total)	1.5	U
11.	67-66-3	CHLOROFORM		4.60
12.	78-93-3	2-BUTANONE	50	U
13.	107-06-2	1,2-DICHLOROETHANE	1.5	U
14.	71-55-6	1,1,1-TRICHLOROETHANE	1.5	U
15.	56-23-5	CARBON TETRACHLORIDE	1.5	U
16.	108-05-4	VINYL ACETATE	15	U
17.	75-27-4	BROMODICHLOROMETHANE	1.5	U
18.	78-87-5	1,2-DICHLOROPROPANE	1.5	U
19.	10061-01-5	cis-1,3-DICHLOROPROPENE	1.0	U
20.	79-01-6	TRICHLOROETHENE	1.5	U
21.	71-43-2	BENZENE	1.5	U
22.	124-48-1	DIBROMOCHLOROMETHANE	1.5	U
23.	79-00-5	1,1,2-TRICHLOROETHANE	1.5	U
24.	10061-02-6	trans-1,3-DICHLOROPROPENE	2.0	U
25.	110-75-8	2-CHLOROETHYLVINYL ETHER	1.5	U
26.	75-25-2	BROMOFORM	1.5	U
27.	108-10-1	4-METHYL-2-PENTANONE	3.0	U
28.	591-78-6	2-HEXANONE	50	U
29.	127-18-4	TETRACHLOROETHENE	1.5	U
30.	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5	U
31.	108-88-3	TOLUENE		4.55
32.	108-90-7	CHLOROBENZENE	1.5	U
33.	100-41-4	ETHYLBENZENE		2.49
34.	100-42-5	STYRENE	1.0	U
35.	108-38-3	XYLENE (total)		12.6

CODES: U - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
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SLC - SUSPECTED LABORATORY CONTAMINANT.
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WATER SAMPLE

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5300-B MCDERMOTT DRIVE, BERKELEY, ILLINOIS 60163
(708) 449-9449, FAX (708) 449-3663

VOLATILES ORGANIC ANALYSIS DATA SHEET

STUDY NAME: Envirodyne-3526 STUDY NO: GAL-910514

LAB SAMPLE I.D. NO: Lab Blank FILE REF. NO: >V4462

	CAS #	COMPOUND	AMOUNT (ug/l)	
1.	74-87-3	CHLOROMETHANE	10	U
2.	74-83-9	BROMOMETHANE	10	U
3.	75-01-4	VINYL CHLORIDE	2.0	U
4.	75-00-3	CHLOROETHANE	1.5	U
5.	75-09-2	METHYLENE CHLORIDE	1.0	U
6.	67-64-1	ACETONE	50	U
7.	75-15-0	CARBON DISULFIDE	3.0	U
8.	75-35-4	1,1-DICHLOROETHENE	1.5	U
9.	75-34-3	1,1-DICHLOROETHANE	1.5	U
10.	540-59-0	1,2-DICHLOROETHENE (total)	1.5	U
11.	67-66-3	CHLOROFORM	1.5	U
12.	78-93-3	2-BUTANONE	50	U
13.	107-06-2	1,2-DICHLOROETHANE	1.5	U
14.	71-55-6	1,1,1-TRICHLOROETHANE	1.5	U
15.	56-23-5	CARBON TETRACHLORIDE	1.5	U
16.	108-05-4	VINYL ACETATE	15	U
17.	75-27-4	BROMODICHLOROMETHANE	1.5	U
18.	78-87-5	1,2-DICHLOROPROPANE	1.5	U
19.	10061-01-5	cis-1,3-DICHLOROPROPENE	1.0	U
20.	79-01-6	TRICHLOROETHENE	1.5	U
21.	71-43-2	BENZENE	1.5	U
22.	124-48-1	DIBROMOCHLOROMETHANE	1.5	U
23.	79-00-5	1,1,2-TRICHLOROETHANE	1.5	U
24.	10061-02-6	trans-1,3-DICHLOROPROPENE	2.0	U
25.	110-75-8	2-CHLOROETHYLVINYL ETHER	1.5	U
26.	75-25-2	BROMOFORM	1.5	U
27.	108-10-1	4-METHYL-2-PENTANONE	3.0	U
28.	591-78-6	2-HEXANONE	50	U
29.	127-18-4	TETRACHLOROETHENE	1.5	U
30.	79-34-5	1,1,2,2-TETRACHLOROETHANE	1.5	U
31.	108-88-3	TOLUENE	1.5	U
32.	108-90-7	CHLOROBENZENE	1.5	U
33.	100-41-4	ETHYLBENZENE	1.5	U
34.	100-42-5	STYRENE	1.0	U
35.	108-38-3	XYLENE (total)	2.5	U

CODES: U - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE VALUE REPORTED IS THE METHOD DETECTION LIMIT FOR REAGENT WATER.
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